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EXAMINER	
MANNING, JOHN	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

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Technology Center 2600

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/767,177	Applicant(s) BROWN, THOMAS A.	
	Examiner John Manning	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 22 January 2001.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-65 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-65 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roeck et al. (US Pat No 6,574,796) in view of Tults (US Pat No 4,763,195).

In regard to claim 1, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." Tults teaches "sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto" so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not

adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto" so as to find active cable channels.

In regard to claim 2, the claimed limitation of "scanning the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto" is met by the automatic fine tuning as described above for claim 1.

In regard to claim 3 and 4, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be

located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 5, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 6 is met by that discussed above for claim 1.

In regard to claim 7, the combined teaching fails to explicitly disclose that the digital signal is a DOCSIS signal. However, the examiner takes OFFICIAL NOTICE that it is notoriously well known in the art to use a DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network. Consequently, it would have been clearly obvious to one of ordinary skill in the art to implement the combined teaching with DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network.

In regard to claim 8, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 9, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose “sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto.” Tults teaches “sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto” so as to find active cable channels. The claimed limitation of “sequentially scanning nonadjacent frequencies in the group of frequencies” is met by Figures 2a and 2b. “During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present” (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. “An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9” (Col 3, Lines 43-47). “Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency

f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "sequentially scanning nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto" so as to find active cable channels.

In regard to claim 10, the claimed limitation of "individually scanning the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detecting energy indicative of the digital data signal from the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto." is met by the automatic fine tuning as described above for claim 1.

In regard to claim 11 and 12, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 13, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of

frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 14 is met by that discussed above for claim 9.

In regard to claim 15, the combined teaching fails to explicitly disclose that the digital signal is a DOCSIS signal. However, the examiner takes OFFICIAL NOTICE that it is notoriously well known in the art to use a DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network. Consequently, it would have been clearly obvious to one of ordinary skill in the art to implement the combined teaching with DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network.

In regard to claim 16, "individually scanning the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detecting energy indicative of the digital data signal from the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto" is met by the scanning of the frequency groups.

In regard to claim 17, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 18, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier.

Roeck fails to explicitly disclose "scanning a first set of frequencies to detect a digital data signal; and scanning a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if the scanning the first set of frequencies fails to detect a digital data signal." Tults teaches "scanning a first set of frequencies to detect a digital data signal; and scanning a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if the scanning the first set of frequencies fails to detect a digital data signal." so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to

one of ordinary skill in the art to modify Roeck with "scanning a first set of frequencies to detect a digital data signal; and scanning a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if the scanning the first set of frequencies fails to detect a digital data signal." so as to find active cable channels.

In regard to claims 19-22, the increment of N (i.e. the step of the frequency) is predetermined. "The values of the division factor N for air channels which standard frequency RF signals are known in advance for every receiving location. Therefore the precise value of N for each air channel can be stored as part of the control program for microprocessor 15. However, the values of division factor N for cable channels and television accessories with non-standard frequency RF signals which may be offset from respective standard frequencies are not known in advance for every receiving location" (Col 5, Lines 67-68; Col 6, Lines 1-8). Are plurality of frequencies are scanned, consequently, there is a first, second, third, fourth and fifth frequency. Where, the predetermined N, can be reduce (i.e. a second predetermined amount) for the automatic fine tuning.

In regard to claim 23, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent

frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." Tults teaches "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b: "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed

frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels.

Claim 24 is met by that discussed above for claim 23.

In regard to claims 25-26, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 27, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 6 is met by that discussed above for claim 1.

Claim 28 is met by that discussed above for claim 23.

In regard to claim 29, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 30, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." Tults teaches "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and

2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "a tuner that is configured to scan a plurality of channels for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels; and a controller that is configured to control the tuner to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels.

Claim 31 is met by that discussed above for claim 30.

In regard to claims 32-33, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 34, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 6 is met by that discussed above for claim 1.

Claim 35 is met by that discussed above for claim 30.

In regard to claim 36, the combined teaching fails to explicitly disclose that the digital signal is a DOCSIS signal. However, the examiner takes OFFICIAL NOTICE that it is notoriously well known in the art to use a DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network. Consequently, it would have been clearly obvious to one of ordinary skill in the art to implement the combined teaching with DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network.

In regard to claims 37-38, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 39, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "a tuner that is configured to scan a plurality of frequencies within a channel to detect a carrier frequency of a digital data signal', and a controller that is configured to control the tuner to scan a first set of frequencies to detect a digital data signal, and to scan a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if scanning the first set of frequencies fails to detect a digital data signal." Tults teaches "a tuner that is configured to scan a plurality of frequencies within a channel to detect a carrier frequency of a digital data signal', and a controller that is configured to control the tuner to scan a first set of frequencies to detect a digital data signal, and to scan a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if scanning the first set of frequencies fails to detect a digital data signal." so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic

fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "a tuner that is configured to scan a plurality of frequencies within a channel to detect a carrier frequency of a digital data signal', and a controller that is configured to control the tuner to scan a first set of frequencies to detect a digital data signal, and to scan a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if scanning the first set of frequencies fails to detect a digital data signal." so as to find active cable channels.

In regard to claims 40-43, the increment of N (i.e. the step of the frequency) is predetermined. "The values of the division factor N for air channels which standard frequency RF signals are known in advance for every receiving location. Therefore the precise value of N for each air channel can be stored as part of the control program for microprocessor 15. However, the values of division factor N for cable channels and television accessories with non-standard frequency RF signals which may be offset

from respective standard frequencies are not known in advance for every receiving location" (Col 5, Lines 67-68; Col 6, Lines 1-8). Are plurality of frequencies are scanned, consequently, there is a first, second, third, fourth and fifth frequency. Where, the predetermined N, can be reduce (i.e. a second predetermined amount) for the automatic fine tuning.

In regard to claim 44, the recitation of a "computer program product that scans a plurality of channels in a cable modem for a carrier frequency of a digital data signal, the digital data signal being received on one of a group of frequencies in one of the plurality of channels, the computer program product comprising a computer-readable storage medium having computer-readable program code embodied therein, the computer program product comprising:" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "computer-readable program code that is configured to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detects energy indicative of the digital data signal from the nonadjacent frequency and from

frequencies that are adjacent thereto." Tults teaches "computer-readable program code that is configured to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a nonadjacent frequency is capable of detects energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "computer-readable program code that is configured to sequentially scan nonadjacent frequencies in the group of frequencies, wherein each scan of a

nonadjacent frequency is capable of detects energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." so as to find active cable channels.

In regard to claim 45, the claimed limitation of "computer-readable program code that is configured to scan the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detects energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto" is met by the automatic fine tuning as described above for claim 1.

In regard to claim 46 and 47, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 48, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 49 is met by that discussed above for claim 44.

In regard to claim 50, the combined teaching fails to explicitly disclose that the digital signal is a DOCSIS signal. However, the examiner takes OFFICIAL NOTICE that it is notoriously well known in the art to use a DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network. Consequently, it would have been clearly obvious to one of ordinary skill in the art to implement the combined teaching with DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network.

In regard to claim 51, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 52, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "computer-readable program code that is configured to sequentially scan a group of nonadjacent potential carrier frequencies selected from the set of potential carrier frequencies, wherein each scan of a nonadjacent potential carrier frequency is capable of detecting energy indicative of the digital data signal from both the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto." Tults teaches "computer-readable program code that is configured to sequentially scan a group of nonadjacent potential carrier frequencies selected from the set of potential carrier frequencies, wherein each scan of a

nonadjacent potential carrier frequency is capable of detecting energy indicative of the digital data signal from both the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto" so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24). Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "computer-readable program code that is configured to sequentially scan a group of nonadjacent potential carrier frequencies selected from the set of potential carrier frequencies, wherein each scan of a nonadjacent potential carrier frequency is capable of detecting energy indicative of the

digital data signal from both the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto" so as to find active cable channels.

In regard to claim 53, the claimed limitation of "computer-readable program code that is configured to individually scan the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detecting energy indicative of the digital data signal from the nonadjacent frequency and from frequencies that are adjacent thereto." is met by the automatic fine tuning as described above for claim 1.

In regard to claim 54 and 55, the claimed limitation of "dividing the group of frequencies into a plurality of sets of frequencies at which the carrier frequency may be located, wherein frequencies of each set are interleaved with frequencies of other sets; and sequentially scanning the frequencies of each set" is met by Figures 2a and 2b (Tults) where there frequencies of the fist and second group are operable to be interleaved.

In regard to claim 56, the combined teaching discloses a first and second set of frequencies, but fails to explicitly disclose a third set. However, it is submitted that it would have been clearly obvious to on of ordinary skill in the art to have a third set of frequencies so are to provide an intermediate set of frequencies between the smaller set of standard frequencies and the larger set of non-standard frequencies.

Claim 57 is met by that discussed above for claim 52.

In regard to claim 58, the combined teaching fails to explicitly disclose that the digital signal is a DOCSIS signal. However, the examiner takes OFFICIAL NOTICE that it is notoriously well known in the art to use a DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network. Consequently, it would have been clearly obvious to one of ordinary skill in the art to implement the combined teaching with DOCSIS signal so as to provide the specifics of the relationship between customer premises equipment and the CMTS (Cable Modem Termination System) at the head-end of the service provider's network.

In regard to claim 59, "individually scanning the frequencies that are adjacent thereto to thereby identify a frequency at which the carrier frequency is located, in response to detecting energy indicative of the digital data signal from the nonadjacent potential carrier frequency and from potential carrier frequencies that are adjacent thereto" is met by the scanning of the frequency groups.

In regard to claim 60, the first set of frequencies are standard frequencies, where if the channel is found, the search for that channel is complete. If not, the second set of non-standard frequencies are used.

In regard to claim 61, Roeck et al. discloses a cable modem that upon initiation uses constellation diagrams for quickly finding a potential downstream data carrier. Roeck fails to explicitly disclose "computer-readable program code that is configured to scan a first set of frequencies to detect a digital data signal; and computer-readable program code that is configured to scan a second set of frequencies that are interleaved

with the first set of frequencies to detect a digital data signal, if the computer-readable program code that is configured to scan the first set of frequencies fails to detect a digital data signal." Tults teaches "computer-readable program code that is configured to scan a first set of frequencies to detect a digital data signal; and computer-readable program code that is configured to scan a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if the computer-readable program code that is configured to scan the first set of frequencies fails to detect a digital data signal" so as to find active cable channels. The claimed limitation of "sequentially scanning nonadjacent frequencies in the group of frequencies" is met by Figures 2a and 2b. "During this search, the value of N is changed in steps in a range around the value of N for a respective standard frequency and, at each value of N, it is determined whether or not a valid television RF signal is present" (Col 6, Lines 13-17). The frequencies are not adjacent because steps of N are larger than the automatic fine tuning. "An automatic fine tuning (AFT) signal representing the deviation, if any, of the frequency of the picture carrier of the IF signal from a nominal frequency value, e.g., 45.75 MHz in the United States, is generated by an AFT detector 9" (Col 3, Lines 43-47). "Briefly, a PLL tuning voltage generator includes a cascade of a fixed frequency divider (usually referred to as a "prescaler") for dividing the frequency of the local oscillator signal by a factor K and a programmable frequency divider for dividing the frequency of the output signal of the prescaler by a programmable factor N. A fixed frequency divider divides the frequency f.sub.XTAL) of the output signal of a crystal oscillator by a factor R to derive a reference frequency signal" (Col 4, Lines 16-24).

Consequently, it would have been obvious to one of ordinary skill in the art to modify Roeck with "computer-readable program code that is configured to scan a first set of frequencies to detect a digital data signal; and computer-readable program code that is configured to scan a second set of frequencies that are interleaved with the first set of frequencies to detect a digital data signal, if the computer-readable program code that is configured to scan the first set of frequencies fails to detect a digital data signal" so as to find active cable channels.

In regard to claims 62-65, the increment of N (i.e. the step of the frequency) is predetermined. "The values of the division factor N for air channels which standard frequency RF signals are known in advance for every receiving location. Therefore the precise value of N for each air channel can be stored as part of the control program for microprocessor 15. However, the values of division factor N for cable channels and television accessories with non-standard frequency RF signals which may be offset from respective standard frequencies are not known in advance for every receiving location" (Col 5, Lines 67-68; Col 6, Lines 1-8). Are plurality of frequencies are scanned, consequently, there is a first, second, third, fourth and fifth frequency. Where, the predetermined N, can be reduce (i.e. a second predetermined amount) for the automatic fine tuning.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Manning whose telephone number is 571-272-7352. The examiner can normally be reached on M-F: 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W Miller can be reached on 571-272-7353. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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JM
March 19, 2005

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